ANCHOR
ENVIRONMENTAL, L.L.C.

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SEP 21 2006
KING COUNTY
INDUSTRIAL WASTE

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Memorandum

To: Bruce Tiffany

From: David Gillingham

cc: Dan Hennessy
Jeff Stern

Date: September 21, 2006

Re: King County International Airport Catch Basin Sampling

This memorandum briefly describes the King County International Airport catch basin sampling performed by Anchor Environmental personnel on September 19, 2006. David Gillingham and Liz Vonckx from Anchor Environmental collected the sediments from the catch basins indicated on the map provided by the King County Industrial Waste Program following the methods prescribed in the sampling and analysis plan dated September 14, 2006.

On the day of sampling, locally heavy rain fell prior to the initiation of sampling but stopped at approximately 0900. Storm water flow was high in the first sample location, 1491, but did not impede sample collection. Samples were collected using the 4-liter stainless steel beakers and the extension pole provided by KCEL. Each catch basin had between 1 and 2 feet of water in the basin so that sediment was not visible from above. The samples were obtained by carefully lowering the beaker to the bottom and scrapping the bottom of the catch basin. Generally, each catch basin had very little material on the bottom so that most samples were obtained from the corners of the basins. Several grabs from each basin were required to obtain enough material to fill the sample jars. After settling, the overlying water was slowly decanted off each grab and sediment obtained from each was composited in a bowl.

Insufficient sediment to obtain a sample was encountered in catch basin 1139. In three basins, 1126, 1130, and 1160, only enough material was obtained to fill one jar, the SVOC jar. Two jars were filled at 1752, SVOC and TS/TOC. The chain-of-custody form lists the number of jars at each location. All samples jars were placed in plastic zip-lock bags in a cooler with ice immediately after collection and held under ice until delivery to the KCEL on September 20, 2006.

Oily sheen was observed in all catch basins generally, however, the heaviest sheen and petroleum odor was observed in the catch basins near the edge of Taxiway A in catch basins 1140, 1153, 1172, 1175, and 1184. In these samples particularly, increased sheen was observed as the sediment was disturbed during sampling and sheen was prominent in the composite bowl. One sample, from catch basin 1166 had a layer of light gray to white, slurry like material over the top of the blacker organic material typical in all the other catch basins. The material was very soft and similar in appearance to concrete washing residue. Field data logs from sediment collection of all catch basins are attached to his memo.

ANCHOR ENVIRONMENTAL, L.L.C.

Catch Basin Sediment Field Sample Record

Sampled: 9/19/06
Shipped: 9/20/06

Project Name: KCIA Catch Basin **Project No:** 020067-01

Sampling Crew: David Gillingham, Liz Vonckx Sampling Method: Hand Collection

Sample Number: KCIA-1491-091906 Penetration/Sampled Depth: ____ Time: 0830
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: Sand	Surface: Brown, Dark	[✓ none]	H2S	~~[✓ none]~~ PG
		slight	Petroleum	[✓ slight]
Subsurface:	Subsurface: Gray	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments: 1 ft of water over sediment in CB. Small amount of organic debris. Some sheen observed in flowing water in CB, and in grab buckets after collection

Sample Number: KCIA-1126-091906 Penetration/Sampled Depth: ____ Time: 0915
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: Sand	Surface: Brown	[✓ none]	H2S	none
		slight	Petroleum	[✓ slight]
Subsurface:	Subsurface:	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments: Very little material in CB. Sand with high organic content. Sample from corners of CB. Some sheen in overlying water of grabs.
only SVOC Jar filled.

Sample Number: KCIA-1130-091906 Penetration/Sampled Depth: ____ Time: 0940
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: organic fluff	Surface: Gray/Brown	[✓ none]	H2S	[✓ none]
		slight	Petroleum	slight
Subsurface:	Subsurface:	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments: sheen observed on water surface in CB. slight flow, Very little Sediment

SVOC Jar only.

Sample Number: KCIA-1139-091906 Penetration/Sampled Depth: ____ Time: 1000
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface	Surface:	none	H2S	none
		slight	Petroleum	slight
Subsurface:	Subsurface:	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments: no sample obtained.

Recorded by: DG, LV

ANCHOR ENVIRONMENTAL, L.L.C.

Catch Basin Sediment Field Sample Record

Sampled: 9/19/06
Shipped: 9/20/06

Project Name: KCIA Catch Basin **Project No:** 020067-01

Sampling Crew: David Gillingham, Liz Vonckx
Sampling Method: Hand Collection

Sample Number: KCIA-1140-091906
Penetration/Sampled Depth: ________
Time: 1010
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:	Sheen:
Surface: lots of organic material Subsurface: and leaves	Surface: Dark gray Subsurface:	none slight moderate strong overwhelming H2S [✓ Petroleum] other:	none slight [✓ moderate heavy] in sediment and overlying water.

Additional Comments: oily sheen in water flowing into CB. sheen increased with disturbance.

Sample Number: KCIA-1153-091906
Penetration/Sampled Depth: ________
Time: 1045
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:	Sheen:
Surface: Sand with organic debris on Subsurface: Top	Surface: Black Subsurface:	none slight [✓ moderate] strong overwhelming H2S [✓ Petroleum] other:	none slight [✓ moderate heavy]

Additional Comments: CB full. sheen on surface and petroleum smelly. Oil boon in pipe, heavy sheen on sample oil sheen observed on tarmac flowing into CB.

Sample Number: KCIA-1160-091906
Penetration/Sampled Depth: ________
Time: 1115
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:	Sheen:
Surface: Sandy with organic Subsurface: debris	Surface: Black with white flecks Subsurface:	none [✓ slight] moderate strong overwhelming H2S [✓ Petroleum] other:	none [✓ slight] moderate heavy

Additional Comments: very little flow in CB. very little sediment sheen on Tarmac running into CB. oily sheen on surface in CB.
SVOC Jar only

Sample Number: KCIA-1425-091906
Penetration/Sampled Depth: ________
Time: 1200
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:	Sheen:
Surface: mostly organic material Subsurface: fines Sludgey	Surface: Black Subsurface:	[✓ none] slight moderate strong overwhelming H2S Petroleum other:	none [✓ slight] moderate heavy

Additional Comments: oily sheen on water surface in CB. very little sediment.

Recorded by: DG LV

ANCHOR ENVIRONMENTAL, L.L.C.

Catch Basin Sediment Field Sample Record

Sampled: 9/19/06
Shipped: 9/20/06

Project Name: KCIA Catch Basin **Project No:** 020067-01

Sampling Crew: David Gillingham, Liz Vonckx
Sampling Method: Hand Collection

Sample Number: KCIA-1184-091906 Penetration/Sampled Depth: ________ Time: 1250
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: mostly organic	Surface: Black	none	H2S	none
Subsurface: material	Subsurface:	[✓ slight]	[✓ Petroleum]	slight
		moderate	other:	[✓ moderate]
		strong		heavy
		overwhelming		

Additional Comments: heavy sheen on water surface and in sample.

Sample Number: KCIA-1752-091906 Penetration/Sampled Depth: ________ Time: 1315
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: Black gravelly &	Surface: dark olive	[✓ none]	H2S	none
Subsurface: small Brown stones	Subsurface: to Brown	slight	Petroleum	[✓ slight]
		moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments: clumps smoothed with mixing. very little sheen.

SVOC & TOC/TS only

Sample Number: KCIA-1166-091906 Penetration/Sampled Depth: ________ Time: 1335
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: white gray	Surface: clay Stuff	none	H2S	none
Subsurface: Black	Subsurface: Sandy grit	[✓ slight]	[✓ Petroleum]	[✓ slight]
		moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments: layer of white silt over Black gritty material

Sample Number: KCIA-1175-091906 Penetration/Sampled Depth: ________ Time: 1410
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: gravelly sand	Surface: dark gray to brown	none	H2S	none
Subsurface	Subsurface:	slight	[✓ Petroleum]	slight
		moderate	other:	moderate
		[✓ strong]		[✓ heavy]
		overwhelming		

Additional Comments: very oily

Recorded by: DG LV

ANCHOR ENVIRONMENTAL, L.L.C.

Catch Basin Sediment Field Sample Record

Sampled: 9/19/06
Shipped: 9/20/06

Project Name: KCIA Catch Basin **Project No:** 020067-01

Sampling Crew: David Gillingham, Liz Vonckx Sampling Method: Hand Collection

Sample Number: KCIA-1172-091906 Penetration/Sampled Depth: ________ Time: 1425
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface: gravelly Sand	Surface: Black	none	H2S	none
		slight	[✓ Petroleum]	slight
Subsurface:	Subsurface: dark gray	[✓ moderate]	other:	[✓ moderate]
		strong		[✓ heavy]
		overwhelming		

Additional Comments: Very oily.

Sample Number: ________ Penetration/Sampled Depth: ________ Time: ________
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface:	Surface:	none	H2S	none
		slight	Petroleum	slight
Subsurface:	Subsurface:	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments:

Sample Number: ________ Penetration/Sampled Depth: ________ Time: ________
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface:	Surface:	none	H2S	none
		slight	Petroleum	slight
Subsurface:	Subsurface:	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments:

Sample Number: ________ Penetration/Sampled Depth: ________ Time: ________
Chemistry/Archive (circle one)

Sediment Type:	Sediment Color:	Sediment Odor:		Sheen:
Surface:	Surface:	none	H2S	none
		slight	Petroleum	slight
Subsurface:	Subsurface:	moderate	other:	moderate
		strong		heavy
		overwhelming		

Additional Comments:

Recorded by: DG LV

Figure 1

KING COUNTY ENVIRONMENTAL LABORATORY *322 West Ewing Street Seattle, WA 98119*

LABORATORY WORK ORDER

page 1 of 1

Project Name: KCIA - Sediment Sampling of Stormwater Structures

Project Number: 423589.090

Laboratory Project Manager: Fritz Grothkopp

Samplers: D. Gillingham L. Vanekx
Anchor Environmental 287-9130

				Parameters												
Sample #	Matrix	Collect Date	Collect Time	PCBs (EPA 8082)	SVOCs (EPA 8270)	Total Organic Carbon (EPA 9060)	Total Solids (SM 2540-G)								No. of Containers	Comments
KCIA-1491	Stormwater Catch Basin Sediment	9/19/06	0830	X	X	X	X								4	Archive Samples Until Notified by King County/WTD
KCIA-1126	Stormwater Catch Basin Sediment		0915		X										1	Archive Samples Until Notified by King County/WTD
KCIA-1130	Stormwater Catch Basin Sediment		0940		X										1	Archive Samples Until Notified by King County/WTD
KCIA-1139	Stormwater Catch Basin Sediment		1000												0	Archive Samples Until Notified by King County/WTD
KCIA-1140	Stormwater Catch Basin Sediment		1010	X	X	X	X								4	Archive Samples Until Notified by King County/WTD
KCIA-1153	Stormwater Catch Basin Sediment		1045	X	X	X	X								4	Archive Samples Until Notified by King County/WTD
KCIA-1160	Stormwater Catch Basin Sediment		1115		X										1	Archive Samples Until Notified by King County/WTD
KCIA-1425	Stormwater Catch Basin Sediment		1200	X	X	X	X								4	Archive Samples Until Notified by King County/WTD
KCIA-1184	Stormwater Catch Basin Sediment		1250	X	X	X	X								4	Archive Samples Until Notified by King County/WTD
KCIA-1752	Stormwater Catch Basin Sediment		1315		X		X								2	Archive Samples Until Notified by King County/WTD
KCIA-1166	Stormwater Catch Basin Sediment		1335	X	X	X	X								4	Archive Samples Until Notified by King County/WTD
KCIA-1175	Stormwater Catch Basin Sediment		1410	X	X		X								3	Archive Samples Until Notified by King County/WTD
KCIA-1172	Stormwater Catch Basin Sediment	↓	1425	X	X		X								3	Archive Samples Until Notified by King County/WTD

Total # of containers: 35

Additional Comments:

All samples to be archived at King County Environmental Laboratory until notified by King County/Wastewter Treatment Division. Contact Bruce Tiffany (T: 206-263-3011) for further questions.

RELINQUISHED BY	Date	RECEIVED BY	Date
Signature	9/20/06	Signature	9/20/06
Printed Name David Gillingham	Time 0830	Printed Name David C Hunn	Time 830
Organization Anchor Environmental		Organization KCEL	